

NPDES Compliance Inspection Report

Section A: National Data System Coding

[illegible]

Section B: Facility Data

Name and Location of Facility Inspected Granite City Steel WWTP Granite City, IL		Entry Time <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	Permit Effective Date 7-20-83
		Exit Time/Date	Permit Expiration Date 5-1-88
Name(s) of On-Site Representative(s) Carl Cannon Tom Mahl		Title(s) Mgr. - Envir. Control Envir. Analyst	Phone No(s) 451-3013
Name, Address of Responsible Official Fred Steinkuehler 20th & State Streets Granite City, IL 62040		Title Dir. - Engineering & EPC	Contacted <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		Phone No. 618-451-3281	

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

5	Permit	5	Flow Measurement	—	Pretreatment	5	Operations & Maintenance
5	Records/Reports	5	Laboratory	—	Compliance Schedules	5	Sludge Disposal
—	Facility Site Review	5	Effluent/Receiving Waters	5	Self-Monitoring Program		Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

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Environmental Protection Agency
STATE OF ILLINOIS

EPA Region 5 Records Ctr.



321344

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone	Date
J N. Mallamby, PE	IEPA Collinsville 618-346-5120	2-20-91
Signature of Reviewer	Agency/Office	Date
Regulatory Office Use Only		
Action Taken	Date	Compliance Status <input type="checkbox"/> Noncompliance <input type="checkbox"/> Compliance

GRANITE CITY STEEL WWTP
Compliance Sampling Inspection

GENERAL INFORMATION

Date: December 5, 1990

Interviewed: Mr. Carl Cannon, GCS-EQC
Mr. Tom Mahl, GCS-EQC

NPDES Permit: IL0000329

Basin Code: JNF-01-119

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PRELIMINARY TREATMENT

Oil Skimming: The two inlet channels to the lagoon system are gated and baffled for oil retention. Four portable rope type and two mop type surface skimmers were located in the steelworks channel. Five of these were in operation at the lower end while one mop type was further upstream. No skimming is presently required in the blast furnace channel. The collected oil is disposed of by Heritage.

Blast Furnace Pond: This internal two cell system was constructed under Agency permit #1983-EB-1030 and placed in service in 1985. Each cell is 300 by 160 ft. and enclosed by a porous 6 ft. high berm made of slag. At the base of the perimeter berm an 18 in. wide concrete collection ditch is used for conveying the seepage to the 20 in. transfer line tributary to the steelworks lagoon. A small portion of this seepage was missing the collection ditch at the entrance ramp and flowing overland to the steelworks channel. The #1 cell was nearly full of solids from the dredging of the steelworks channel. The #2 side had remaining capacity.

Isolation Pond: This pond, which has not received process water for at least 10 years, is now scheduled for filling. This 10 ac. pond was cleaned last summer by Helmkamp with the material disposed of in the section 3 landfill. Clean fill is to be used over the years to backfill the pond site.

BIOLOGICAL TREATMENT

Three individual waste streams are treated biologically prior to combining and passing through the physical-chemical portion of the plant.

Stabilization Lagoons: The two parallel lagoons, which receive segregated flow from the steelworks and blast furnace areas of the mill, appeared satisfactory. The steelworks lagoon was open water with very good clarity. The blast furnace lagoon was also open water which is unusual for this time of year. Normally there is a partial ice cover. The water was fairly clear with no unusual coloration. The lagoons are driven around daily and any shoreline oil accumulation is removed. The steelworks lagoon has an area of approximately 100 acres. The blast furnace lagoon has an area of approximately 250 ac. and also receives the discharge of the biological treatment system.

The lagoon flows combine at the recycle pump station for discharge back to the mill. Blowdown water is pumped to the phys/chem system. No operational problems were reported with this pump system. The mechanical screen ahead of the pumps was in service and its operation appeared satisfactory. The lagoon emergency discharge gates in the outfall structure were also viewed. These steel plates were in place and no leakage was noted.

Activated Sludge System: Flow from the coke by-products plant ammonia still is treated prior to discharge to the lagoon system. This occurs at the biological system equipped for flow equalization, emergency influent storage, temperature and pH adjustment, and nutrient addition. For sludge handling, a decant tank and vacuum drying bed are provided with ultimate disposal at the mill section 3 landfill.

The two aeration tanks were in service with the total flow being approximately 100 gpm. The flow split appeared even. The original flow meters at the head of each were not in service and their use has ceased. A new Fischer meter has been installed at the #2 tank inlet and this read 50 gpm. Chemical addition consists of phosphoric acid at a rate of 6 gals./day, soda ash at approximately 3600 lbs/day, and Nalco 7460 anti-foam agent at a 2 gal./day rate. According to Mr. Cannon, the sulfuric acid feed has not been required.

The aeration tanks were a deep brown color with minimal surface foam production. The mixing/aeration in each appeared satisfactory at a D.O. of 3.6 in #1 and 2.4 in #2. The mixed liquor is presently maintained at a MCRT of approximately 100 days. During the visit the MLSS were reported at 3600 and 6500. Probes are also provided for temperature and pH. The #1 unit was in operation at a temperature of 90° F and a pH of 7.07 units. The #2 values were a temperature of 90° F and a pH of 7.30 units.

The integral clarifiers were turbid in appearance and the effluent was laden with solids. This is normal as the effluent TSS from these units is routinely in the 200 mg/l range. No problems were reported with the clarifier mechanical equipment. Sludge is returned to the aeration tanks at a 100 percent rate with the waste basically being the effluent solids loss. This operating scheme is utilized to maintain an age of approximately 100 days.

Physical/Chemical System: The lagoon flows combine and are discharged to the filtration unit prior to discharge to Horseshoe Lake. This plant is also equipped for chlorination/sulfonation, however, break point chlorination has not been necessary for sufficient ammonia removals. Ammonia values are routinely monitored and should a spike occur, the effluent is diverted from the lake and into the lagoons. During the inspection, the effluent ammonia was 0.53 mg/l at a pH of 7.59 units. The effluent temperature was 51° F.

The eight sand filter cells were in operation and appeared satisfactory. According to Mr. Cannon, the only required major maintenance on the filter was painting all exposed metal surfaces this past summer. Each cell is set for a fast drain prior to backwashing. This discharges to the steelworks lagoon via the backwash holding pond.

The effluent discharges to the lake by a flume type channel which is equipped with a Parshall flume. An ultrasonic measuring device has been installed in place of the float type unit. This reportedly caused winter operating problems due to ice forming on the float. The meter was last calibrated on May 19, 1990. A 22.385 mgd flow was reported as yesterday's total.

Solids Handling: The filter backwash water is discharged to the adjacent holding pond where the liquid fraction is transferred to the lagoon system and the solids are transferred to the nearby sludge holding areas for natural dewatering. This solids transfer reportedly is done every three to four years. The adjacent #3 area is triangular in shape and has a 1.8 ac. surface area. This area was cleaned by G.G. Wolfe Co. this past year. The solids were disposed of at the section 3 landfill.

The #4 dewatering area is located adjacent to the steelworks lagoon. This has a 5.5 ac. surface area and has been utilized to receive the solids being dredged from the steelworks lagoon inlet. The Mudcat will later be moved back to the blast furnace lagoon inlet and that area re-dredged. This dredging is an almost continual operation.

Aeration Tank: Domestic sewage generated at the WWTP is discharged to an aerated tank and previously was discharged to the phys/chem system. This tank is now pumped every other day by Stamps Sewer Service and transported to the City WWTP for disposal.

RECORDS & REPORTS

Sample Collection: Effluent composite samples are collected using an American Sigma unit which is refrigerated. The unit is housed in the control/equipment building with the suction line tapped into the discharge piping. The lake sample for un-ionized ammonia is collected off of the blast furnace lagoon berm at the gate down flow from the phys/chem outfall.

Effluent Quality: The discharge to Horseshoe Lake routinely complies with the permit limitations. The last notice of non-compliance concerned a December 3, 1990 daily maximum exceedence for fecal coliform. This is not uncommon and is attributed to the waterfowl which land on the two lagoons. The adjacent Horseshoe Lake is a major area waterfowl hunting site due to being within the Mississippi flyway. A review of all 1990 DMR's indicates that fecal coliform was the only parameter to be exceeded.

As part of the inspection, an effluent composite sample was collected and split. The Agency analysis results were received on February 1, 1991 and are noted on laboratory report sheet B017940. These results and those submitted as the December DMR daily maximum values are listed as follows:

	<u>IEPA</u>	<u>DMR</u>
BOD	4	11
TSS	4	16
Oil	1K	5K
Fe	0.546	1.7
Pb	0.05K	0.1K
Zn	0.05K	0.1K
Cyanide	0.010	0.1K
Phenol	0.005K	0.1K
Ammonia	0.19	1.4
F. Coli	-	540
pH	8.1	8.3

K = Less Than

All results reported as mg/l except for pH, which is reported as standard units.

Laboratory: Analyses are performed in the EQC laboratory for NPDES reporting and the QC program reportedly remains unchanged from that noted in previous reports. Operational testing is conducted in the WWTP laboratory using a Nessler distillation and Spectronic 20D for ammonia, a Yellowstone dissolved oxygen meter, and a Corning 125 pH meter.

Reports: Monthly discharge monitoring reports are routinely received in a timely manner. Notices of non-compliance are also received when required. Prior to the written notice, this regional office is informed of the excursion by telephone.

Permit Renewal: According to Mr. Cannon, the renewal application was submitted on November 10, 1987. Environmental Analysis conducted the routine inorganics, ESE conducted the biomonitoring, Hazleton Laboratories conducted the Ames, and Enviropact conducted the priority pollutant analysis. The draft permit has been submitted to USEPA for their review, but their concurrence has not yet been received. The most recent public notice of the permit is dated November 1, 1990.

Mr. Cannon also mentioned that a zone of initial dilution and mixing zone study has been completed and submitted to the Agency's permit and planning sections. This work was done by ERM-North Central. A biological assessment of Horseshoe Lake has been conducted by ESE and a draft report prepared. Once the report is finalized, it also will be submitted to the Agency.

SUMMARY

The wastewater treatment facilities are generally well operated and maintained. Compliance with the limitations of the permit is routine, aside from an infrequent excursion. This includes the analysis and reporting of the internal 001A discharge and of the Mississippi River intake water.

The only recommendation would be to divert all seepage at the blast furnace pond (dewatering areas #1 and #2) into the collection ditch.

During the inspection, the status of the #2 continuous caster was discussed since the November public notice is based on its use. Prior to its operation, the proposed effluent limit for lead is an average of 0.2 and a 0.4 daily maximum. After start-up of the #2 caster, the lead limitation will become a 0.1 mg/l daily maximum. The proposed permit also calls for the Agency to be notified of when the caster is placed in service. According to Mr. Cannon, the initial run of the #2 caster was on December 1st with full operation scheduled to begin by March. The blooming mill is to be taken out of operation at that time.

J. N. Mahlandt
J. N. Mahlandt, P.E.

JNM:cas/0705W

cc: DWPC - Collinsville

cc: DWPC/CAS - Barb Conner ✓